

Remarks

In the claims:

1. Applicant has canceled claims 9 through 28 because said claims were previously withdrawn from consideration as being directed to a non-elected species.
2. Applicant has amended claims 1 through 8 to: (a) delete the phrase “one or more” and replace same with the phrase “at least one”; and (b) replace the plural word “media” with the singular “medium”. Applicant respectfully asserts that the subject amendments, which are not substantive changes or limitations, clarify said claims by more particularly pointing out and distinctly claiming the subject matter which the Applicant regards as the invention.
3. 35 USC § 102(b) Rejection (Hater): Applicant respectfully asserts that the pending claims, as amended, are not anticipated by U.S. Patent No. 4,810,385 to Hater (the ‘385 Patent). Specifically, the ‘385 Patent to Hater clearly discloses use of a finite number of dried bacterial/microbial cultures placed on a solid carrier. The solid carrier is then loaded in a porous container (sock) which is immersed within a waste supporting liquid environment. After being exposed to such liquid waste, the dried bacterial cultures are “released from the surface of the solid carrier” and carried away from said porous container (See Column 3, Lines 11 - 15). As a result, when all of said bacterial cultures have been released from the solid carrier and transported away from said porous container, the Hater device is “spent” and thereby loses its effectiveness. In order to regain its effectiveness, the Hater device must be retrieved and “re-loaded” with additional dried bacterial cultures.

By contrast, the present invention utilizes continuous in-situ growth of beneficial microbial cultures to seed waste-laden environments. There is no need to reload or “dose” such

microbial cultures in the device of the present invention. Instead, said microbial cultures propagate on the surface of the carrier substrate, thereby resulting in continuous in-situ addition of beneficial microbial cultures through demand growth.

Applicant has amended independent claims 1 and 5 to expressly reference such in-situ microbial propagation on the surface of the carrier medium or media. This amendment, which is clearly supported by the specification in this matter which addresses continuous microbial addition and demand growth, does not constitute new matter. (See, for example, Page 9, lines 5-7; Page 10, line 16 - Page 11, line 12; and Page 17, lines 1 - 9).

4. 35 USC § 103(a) Rejection: Applicant respectfully asserts that the claims set forth in the present application, particularly as amended, are not obvious. Applicant acknowledges that U.S. Patent No. 3,998,714 to Armstrong discloses wet well aeration. However, none of the prior art references cited by the Examiner disclose or teach in-situ growth or propagation of beneficial microbial populations for waste remediation purposes. To the contrary, all of said references involving bio-reactor technology clearly contemplate “dosing” of such microbes; that is, addition of such microbial cultures from an outside source, rather than continuous addition from in-situ propagation.

Specifically, as discussed above, the ‘305 Patent to Hater clearly contemplates “dosing” of dried bacteria after such bacteria has been transported away from the porous container. Similarly, the device described in U.S. Patent Application No. 2003/0136734 to Mirzayi, et al. discloses continuous (or at least repeated) addition of beneficial microbes from an outside source (See tank 12 in Figure 1). Likewise, U.S. Patent No. 5,770,079 to Haase teaches periodic dosing of dried bacterial cultures, or injection of liquid bacterial cultures from an

outside source via “feeding means”(See, for example, Column 7, lines 23-29). None of these references, or any of the other references cited by the Examiner, disclose or contemplate continuous addition of such microbial cultures through in-situ propagation.

The present invention possesses a number of advantages which are not disclosed or taught by the prior art. Most notably, the present invention permits in-situ addition of beneficial microbial cultures directly in the waste-laden environment to be treated through demand growth within the bio-reactor itself. There is no need for the addition of such microbial cultures from an outside source, or the cost and labor associated therewith. Rather, said microbial cultures propagate within the bio-reactor on the surface of the carrier medium or media and eventually become the dominant species within the environment being treated, thereby facilitating highly effective and efficient mineralization of wastes.

5. 35 USC §102(b) Rejection (Senda, et al.): The cited prior art does not teach or disclose in-situ demand growth of beneficial microbial populations. For the reasons set forth in detail above, the currently pending claims, as amended, are not anticipated by U.S. Patent No. 5,507,950 to Senda, et al.).

In the specification:

Applicant respectfully requests amendment of the title as set forth herein. Applicant believes that the amended title more accurately describes the claimed invention in light of the restriction requirement contained in the Office Action dated December 23, 2003 and Applicant's election concerning same.

The Examiner is respectfully invited to contact Applicant's representative, Ted M. Anthony, by telephone at (337) 262-9000 or facsimile at (337) 262-9001, if the Examiner has any questions concerning the subject application or this response.

Respectfully submitted:

PERRET DOISE, APLC

Date: July 14, 2004

By: Ted M. Anthony
TED M. ANTHONY (Reg No. 38,816)
Post Office Drawer 3408
Lafayette, LA 70502
Telephone: (337) 262-9000

CERTIFICATE OF MAILING PURSUANT TO 37 CFR 1.8

I HEREBY CERTIFY that this Response to Second Office Action is this day being deposited with the United States Postal Service, as first class mail, with proper postage affixed, in an envelope addressed to: Mail Stop Unit 1724, Commissioner for Patents, P. O. Box 1450 Alexandria, VA 22313-1450 on July 14, 2004 (date of deposit).

TED M. ANTHONY

Name of Registered Representative

Ted M. Anthony

Signature of Registered Representative

July 14, 2004

Date of Signature

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